

Test bed for the investigation ...

P/522/62/000/042/002/002
D262/D308

ASSOCIATION: Katedra Cieplnych Maszyn Przewodowych i Pracownia
Komór Spalania (Department of Turbine Heat Engines
of Łódź Polytechnic. Combustion Chambers Laboratory)

Card 2/2

MIDAK, Edmund; ZIELINSKI, Marian

Results of rapid pregnancy immunological test with prognosticcm.
Wiad. lek. 18 no.15:1251-1253 1 Ag '65.

1. Z Oddz. Pol.-Gin. Centr. Szpitala Klin. Ministerstwa Spraw
Wewnętrznych w Warszawie (Kierownik: dr. med. M. Zielinski).

POLAND/Nuclear Physics - Installations and Instruments.
Methods of Measurement and Research.

C

Abs Jour : Ref Zhur - Fizika, No 8, 1959, 17128

Author : Zlotowski, Ignacy; Zielinski, Mieczyslaw

Inst : Warsaw University, Poland

Title : Determination of the Activity of the Isotope C¹⁴ in
Gaseous State in a Geiger-Muller Counter Filled with a
Mixture of CO₂ or CO with Heavy Saturated Hydrocarbon

Orig Pub : Nukleonika, 1958, 3, No 5, 529-546

Abstract : The author investigates in detail a method of determining
the activity of radioactive C¹⁴ in the form of CO₂ or CO
in a Geiger-Muller counter, filled with a gas mixture
which contains, in addition to the aforementioned tagged
molecules, a small additive of vapors of saturated heavy
hydrocarbons (n-hexane, n-heptane, n-octane, n-nonane,

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POLAND/Nuclear Physics - Installations and Instruments.

Methods of Measurement and Research.

Abs Jour : Ref Zhur Fizika, No 8, 1959, 17128

(order of 10⁻¹⁰ coulombs per second). The experiments performed have shown that counters filled with vapors of heavy saturated hydrocarbons or with a mixture of these hydrocarbons with carbon monoxide or dioxide are self-quenching and have good characteristics. The characteristics of counters filled with various mixtures of CO and CO₂ and heavy saturated hydrocarbons were investigated as a function of the nature of the quenching additive, the general pressure of the gas phase in the counter, and the partial pressures of the components. Preliminary experiments have shown that when the total pressure is changed from 20 to 100 mm mercury, the partial pressure of CO₂ can vary from 10 to 18 mm mercury, while the partial pressure of CO cannot exceed the partial pressure of the hydrocarbon. Applying a voltage to the counter anode through a resistor on the order of 100 meg-ohms, a resolution time on

C

Card 2/3

Zielinski, M. ; Zlotowski, I.

Istopic effect in the Van Slyke combustion of some carbon 14 aliphatic alcohols and acids. p. 5.

NUKLEONIKA. (Polska Akademia Nauk. Komitet do Spraw Pokojowego Wykorzystania Energii Jadrowej) Warszawa, Vol. 4, no. 1, 1958.

POLAND

Monthly List of European Accession (EEAI) LC, Vol 8, no. 7, July 1959.

Uncl.

POLAND / Physical Chemistry. Radiochemistry. Isotopes. B

Abs Jour: Ref Zhur-Khimiya, No 20, 1959, 70696.

Author : Zielinski, M.; Wincol, H.

Inst : Not given.

Title : Synthesis of Potassium Oxalate and Oxalic Acid Labeled with Cl¹⁴.

Orig Pub: Roczn. chem., 1958, 32, No 5, 1189-1190.

Abstract: In a previously proposed method of synthesizing K₂C₂O₄ (I) labeled with Cl¹⁴ (Leng E. A., J. Amor. Chem. Soc., 1939, 61, 570), finely granulated sand (the adsorbent active agent) is replaced by gravel having a grain diameter of 5-7 mm. By the method of reverse isotope dilution, it is established that I, obtained by this method, contains no traces of carbonates. The labeled H₂C₂O₄ (II) was obtained by means of isotope ex-

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CATEGORY	: Physical Chemistry - radiochemistry. Isotopes.
ABSTRACT	: RZKhim., No. 24, 1959, No. 85189
AUTHOR	: Zlotowski, I.; Zieliński, M.
INST.	:
TITLE	: Isotope Effect Observed During the Process of Combustion According to Van Slyke of Some Aliphatic Alcohols and Acids Tagged with C ¹⁴ .
ORIG. PUB.	: Nukleonika, 1959, 4, No 1, 5-12
ABSTRACT	: Study of the isotope effect in wet combustion according to Van Slyke method of oxalic acid, acetic acid, and of methyl alcohol tagged with C ¹⁴ . The following results were obtained: CH ₂ C ¹⁴ O ₂ H 1.7 ± 0.5%; C ¹⁴ H ₃ CO ₂ H 4.0 ± 0.6%; C ¹⁴ O ₂ HCO ₂ H 3.5 ± 0.6%; C ¹⁴ H ₃ OH 0.0 ± 0.6%. The values thus obtained are lower, in all instances, than the maximum theoretically calculated values (Bigeleisen J., J. Phys. Chem., 1952, 56, 823). -- A. Revzin.

CARD:

19

5(2), 21(1,5)

POL/46-4-6-4/19

AUTHOR: Złotowski, Ignacy; Zieliński, Mieczysław

TITLE: On Some Relations Between the Mechanism of the Reaction
 $\text{CO(gas)} \xrightarrow{\text{J}_2\text{O}_5} \text{CO}_2(\text{gas})$ and Kinetic Isotope Effects for ^{14}C .

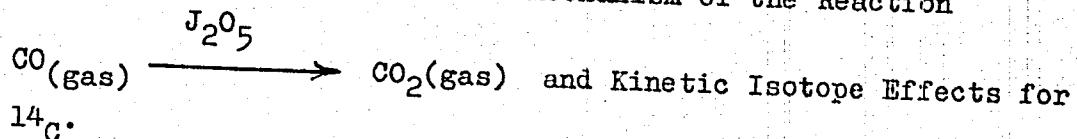
PERIODICAL: Nukleonika, 1959, Vol IV, Nr 6, p 599-610

ABSTRACT: The authors expected that by using certain data concerning the kinetic isotope effect of oxidation of CO marked with ^{14}C isotope, obtained during previous investigation, they might be able to elucidate the mechanism of this reaction. As the reaction takes place at the border between gas and solid phases, it was necessary to find out which of the three partial reactions, adsorption of Co on J_2O_5 , - the reaction of

Card 1/3 J_2O_5 splitting and formation of CO_2 and finally the ✓

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On Some Relations Between the Mechanism of the Reaction

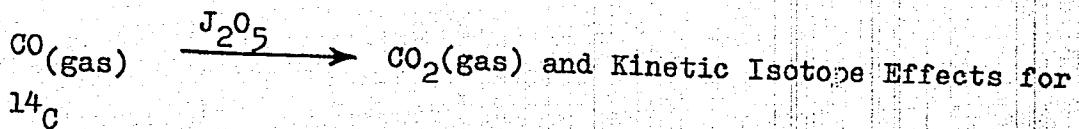


desorption of gaseous CO_2 is progressing at the slowest pace and thus rules the kinetics of the whole process. The authors carried out extensive laboratory research and described them in detail in this article. They compared the experimentally obtained results with the kinetic isotope effect data theoretically calculated for the three consecutive stages of the process and found out, that the first phase of reaction is the slowest. Evidence has been obtained which suggests that in the intermediate active complex $\text{O}....\text{C}....\text{O}....\text{J}$, the bonds between C-atom and the two atoms of Oxygen are equivalent, the oxidising atom of Oxygen being already very strongly attached to the CO molecule. On the

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On Some Relations Between the Mechanism of the Reaction



other hand, the bonds of the active Oxygen atom with J-atom in J_2O_5 and C-atom in CO, appear not to be equivalent in this active complex. There are 5 tables and 27 references, of which 3 are Polish, 3 German, 2 French, 17 English and 2 Soviet.

ASSOCIATION: Warsaw University, Chair of Nuclear Chemistry ✓

SUBMITTED: March 1959

Card 3/3

ZLOTOWSKI, Ignacy; ZIELINSKI, Mieczyslaw

Note on the kinetic isotope effects in decarboxylation of picolinic acid in fused state and in solutions. Nukleonika 6 no.7/8:511-515 '61.

1. University of Warsaw, Warszawa, Department of Nuclear Chemistry.

ACC-NR: AP7003367

SOURCE CODE: P0/0046/66/011/11-/0807/0809

AUTHOR: Zielinski, Mieczyslaw

ORG: Department of Radiochemistry, University of Warsaw, Warsaw

TITLE: Tritium isotope effects in the oxidation of hydrogen and methane. Part 1. Tritium isotope effect in the oxidation of singly labelled methane

SOURCE: Nukleonika, v. 11, no. 11-12, 1966, 807-809

TOPIC TAGS: hydrogen, ~~hydrogen~~ oxidation, methane, methane oxidation, tritium, isotope, ~~tritium isotope~~, chemical labelling, labelled methane, ~~HYDROGEN~~

ABSTRACT:

¹⁴C Isotope effect measurements have shown that the C—H bond rupture seems to be the rate-determining step in the oxidation of CH₄ with CuO[1]. The purpose of the presented below experiments was to confirm that interpretation of ¹⁴C Isotope studies using the singly tritiated methane as an isotopic molecule.

The analytical and counting apparatus used in this study was identical with that described in the Reference [1] and [2]. Tritiated methane obtained in the reaction[1]:



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ACC NR: AP7003367

was purified by repeated vacuum distillation. During oxidation of the $\text{CH}_4 + \text{CH}_3\text{T}$ isotopic mixture over CuO , the U-tube "3" (see Fig. 1, Ref. [1]) was kept at -80°C . During the last few recycling, before the oxidation was stopped, the temperature of the U-tube was lowered down to the temperature of the liquid air, to remove the traces of the water vapours. Tritiated methane was transferred into the G. M. — counter by passing it additionally through U-tubes of the counting apparatus kept at liquid air temperature[1].

Experimental results are given in the Table 1.

Table 1. Tritium isotope effects during oxidation of the $\text{CH}_4 + \text{CH}_3\text{T}$ mixture with CuO at $700-750^\circ\text{C}$.

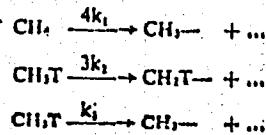
Exp. No.	f	A_t/A_0	ϕ	Initial pressure of CH_4 , mmHg
1	0.618	1.19	1.22	144.4
2	0.596	1.12	1.14	220.5
3	0.642	1.17	1.18	69.9
4	0.559	1.22	1.33	111.0
5	0.382	1.06	1.13	242.0
6	0.610	1.162	1.19	71.3
7	0.559	1.07	1.09	102.0
Av. 1.18 ± 0.05				

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ACC NR: AP7003367

Discussion of the experimental results

For a set of three unimolecular reactions:



the following formula is valid:

$$\phi = \frac{\ln(1-f)}{\ln(A_1/A_0) + \ln(1-f)} \quad (1)$$

where f is the fraction of oxidized CH_3 , A_1 — specific activity of unoxidized CH_3 , A_0 — initial specific activity of unoxidized methane at $t = 0$,

$$\phi = \frac{4k_1}{k_2 + 3k_3}$$

or

$$\phi = \frac{4}{3 + k_3/k_1}, \quad \text{if } k_3/k_1 = 1,$$

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ACC NR: AP7003367

Measured enrichment factors ϕ are collected in the column 4 of the Table 1. Average value of the separation factor ϕ equals 1.18 ± 0.05 . Using this value for the separation factor ϕ , under condition that $k_1/k_1 \approx 1$ one can see that the ratio $k_1/k_2 = 2.6$.

In spite of the quite large experimental error in the determination of the ratio k_1/k_2 caused by some back exchange between water vapours formed in the process of methane oxidation[1], the value 2.6 indicates also that C—H bond rupture is the rate determining step in the process of oxidation of CH₄ with CuO. The separation factor for singly labelled tritiated methane, under assumption of the diffusion controlled reaction should be 1.06, the value lower 1 have obtained in this study.

Part II. Tritium enrichment of the tritiated hydrogen in the process of its oxidation by N₂O

At 25°C protium oxidizes 1.3 times faster than tritium in the reaction of tritium and ordinary hydrogen with oxygen induced by the beta-radiation of tritium[4]. This small value of the isotope effect was interpreted by Dorfman and Hemmer as corresponding to the isotope effect in the reaction:

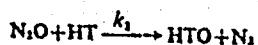
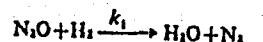


Additional explanation was given by Roginsky[5], who suggested that differences in mobilities of the tritium and hydrogen atoms are responsible for such a small isotope effect. Hydrogen atoms are diffusing faster than the tritium atoms to the walls of the reaction vessel recombining there; thus, the concentration of tritium atoms in gas phase is larger than that of hydrogen and therefore the apparent rate of disappearance of tritium molecules is greater than it should be if the gas phase concentration of tritium and hydrogen atoms were equal.

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ACC NR: AP7003367

In this part of the research an attempt was made to measure the ratio k_1/k_2 for the pair of reaction:



The partial oxidation reactions of the tritiated hydrogen with N_2O have been studied in quartz vessel (see Fig. 1, Ref. [2]) in the temperature interval 400-600°C.

Procedure described in the reference [1] was used to separate the postreaction gaseous mixture consisting of: N_2 , $\text{H}_2 + \text{HT}$, N_2O and HTO .

The results of measurements and recalculated on their basis enrichment factors ϕ are given in the Table 2. In formula (1) applied to the present case, R_t and R_0 means specific activity of hydrogen at time t and at $t = 0$, $f =$ as before the degree of oxidation.

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ACC NR. AP7003367

Table 2. Tritium Isotope fractionation in the oxydation of hydrogen with N₂O

Exp. No.	Temp. °C	Fraction oxi- dized —f	$\frac{A_t}{A_0}$	ϕ	Retention time, minutes
1	436	0.380	1.204	1.63	3043
2	400	0.159	1.052	1.40	6810
3	500	0.608	1.651	2.15	227
4		0.653	1.492	1.61	612
5		0.783	1.588	1.43	889
6		0.714	1.338	1.30	1480
7		0.585	1.179	1.23	2325
8	575	0.432	1.189	1.44	121
9	550	0.642	1.175	1.19	360
10	630	0.683	1.678	1.82	35
11		0.643	1.502	1.65	60
12		0.656	1.412	1.48	80
13		0.683	1.345	1.35	110
14	643	0.636	1.257	1.29	90

Data presented in the Table 2 show that enrichment factor ϕ has small temperature dependence and changes depending on the time of standing of the reaction mixture in the reaction vessel. Above changes have been explained by the back exchange reaction taking place between the water enriched with protium and the hydrogen enriched with tritium[1] in the process of the oxidation reaction.

Further studies of the isotope effect in this reaction are in course.

Received 30 June 1966.

Cord 6/7

ACC NR 47100000

REFERENCES

1. ZIELIŃSKI M.: Kinetic Isotope Effects Accompanying Oxidation of CO₂H₂, and CH₄, *Nuclear Applications* 2, 51-54 (1966).
2. ZIELIŃSKI M.: Isotopic Exchange Studies in the Systems: HTO—H₂, HTO—CH₄, CO—C¹⁴O₂, and Some Kinetic Isotope Effect Measurements (paper prepared for publication).
3. ZIELIŃSKI M.: Synthesis of Some Tritium Labelled Chemical Compounds, *Nukleonika* 7, 789-792 (1962).
4. DORFMAN M., HEMMER B. A.: Ion-Pair Yield of the Tritium-Oxygen Reaction, *J. Chem. Phys.* 22, 1555-1558 (1954).
5. ROGINSKI S. Z.: Teoreticheskie osnovy izotopnykh metodov izuchenija chimicheskikh reakcij, Moskva, 1966.

Orig. art. has: 2 tables and 1 formula. Original article [W. A. 68]
[BO]

SUB CODE: 07/ SUBM DATE: 30Jun66/ ORIG REF: 001/ SOV REF: 001/
OTH REF: 002

Card 7/7

L 15594-66 EWP(j) RM
ACC NR: AP6008231

SOURCE CODE: PO/0046/65/010/006/0337/0341

AUTHOR: Zielinski, Mieczyslaw-Zelin'ski, M.

ORG: Department of Nuclear Chemistry, Warsaw University

TITLE: Sup 13 C isotope effects in the decarboxylation of malonic acid

SOURCE: Nukleonika, v. 10, no. 6, 1965, 337-341

TOPIC TAGS: carbon, chemical reaction, aliphatic dicarboxylic acid, radiation chemistry, mass spectrometry, radioisotope

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B

ABSTRACT: Intramolecular and intermolecular sup 13 C isotope effects in the decarboxylation of malonic acid were measured on the McKinney-Nier mass spectrometer and the data obtained were compared with isotope effects reported in the literature. This work was supported in part by the National Foundation grant - GP2019. Also many facilities from the Enrico Fermi Institute for Nuclear Studies of the University of Chicago have been used for which the author is indebted to Dr. Clayton and Dr. Sugarman. Orig. art. has: 6 formulas and 2 tables. [NA]

SUB CODE: 18, 07 / SUBM DATE: none / ORIG REF: 002 / OTH REF: 006

SB
Card 1/1

ZELINSKI, Miechislav [Zielinski, Mieczyslaw]

Synthesis of certain tritium labeled chemical compounds.
Nukleonika 7 no.12:789-792 '62.

1. Varshavskiy Universitet, Varshava, Kafedra yadernoy khimii.

ZLOTOWSKI, Ignacy; ZIELINSKI, Mieczyslaw; PANTA, Przemyslaw

The isotopic tracer method of study of the exchange reactions in
the systems: Ferrous picolinate hexaaquo complex of Fe (II) and
ferrous picolinate picolinic acid. Nukleonika 7 no.5:311-323
'62.

ZLOTOWSKI, Ignacy; ZIELINSKI, Mieczyslaw

Note on the kinetic isotope effects in decarboxylation of
picolinic acid in fused state and in solutions. Nukleonika
6 no.7/8:511-515 '61.

1. University of Warsaw, Warsaw, Department of Nuclear Chemistry.

ZIELINSKI, M.

~~Problem of pharmaceutic warehouses. Farm.polska 11 no.7:167-168~~
July '55.

(PHARMACY.

in Poland, warehouses)

ZIELINSKI, M.

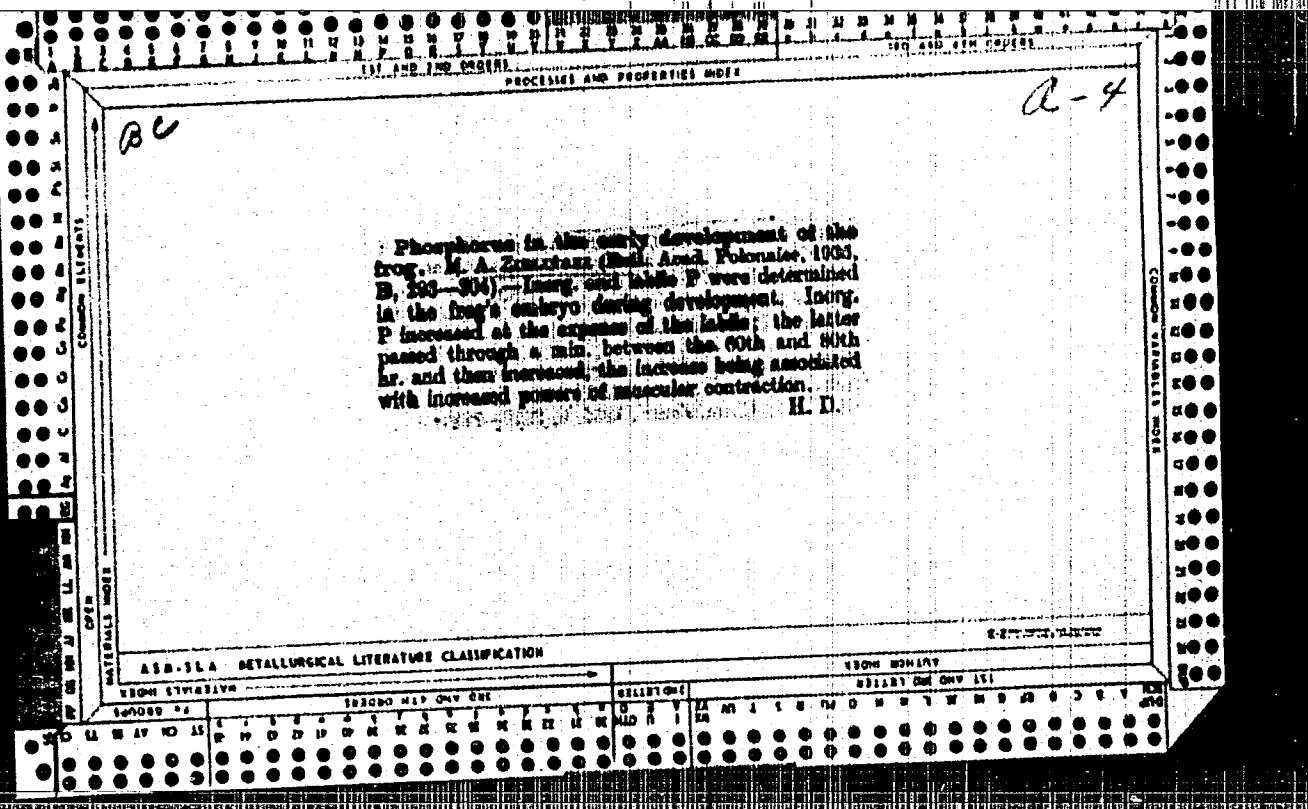
Problem of pharmaceutic warehouses. Farm.polska 11 no.7:167-168
July '55.

(PHARMACY,
in Poland, warehouses)

ZIELINSKI, M.

"Problem of Maintaining Heat in Aquariums," P. 25. (GOSPODARKA RYBNA,
Vol. 6, No. 8, Aug. 1954 Warszawa, Poland)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4,
No. 1, Jan. 1955 Uncl.



Phosphorus in the early development of the frog. M. A. Zielinski. *Bull. intern. acad. polonaise, Classe de math. et nat.*, 1935B, II, 291-304. Unfertilized frog eggs contain 0.004 mg. inorg. orthophosphate (I), and 0.01-0.013 mg. unstable P (II) (phosphate ester) per 100. In further development the increase of I approaches a parabolic curve. Between the 6th and 80th hr. the content of II is min. and later rises, but during this time the sum of I and II remains const.; this shows that I increases at the expense of II. Total acid-sol. P rises during development. Walter H. Seeger

Walter H. Stewart

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PROCESSES AND PROPERTIES INDEX

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APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002065110015-0"

ZIELINSKI, P.

Certain technical and technological solutions in the production of prestressed concrete slabs. p. 2.

BUDOWNICTWO PRZEMYSLOWE. (Ministerstwo Budownictwa Przemyslowego) Warszawa, Vol. 4,
No. 10, Oct. 1955.

SOURCE: East European Accessions List (EEAL), Library of Congress,
Vol. 5, No. 7, July 1956.

"APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002065110015-0

"Conference of Theoretical Physicists in Wroclaw (Breslau)."
Postepy Fizyki, Warsaw, Vol 4, No 4, 1953, p. 504

SO: Eastern European Accessions List, Vol 3, No 10, Oct 1954, Lib. of Congress

APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002065110015-0"

JACOSSY L.
 21(1) PLATE I BOOK EXPLOITATION
 International Conference on Cosmic Radiation. Budapest, 1956.
 International Conference on Cosmic Radiation Organized by the
 Hungarian Academy of Sciences. Budapest, 1957. 167 p.
 200 copies printed.

Sponsoring Agency: Magyar Tudományos Akadémia

Eds.: S. Panvay, and A. Somogyi

PURPOSE: This report is intended for geophysicists concerned with
 cosmic radiation.

CONTENTS: This report contains the papers read at
 the conference. Some of the papers deal with scientific problems of the
 sun, comets, meteors, etc., others with nuclear
 ray measurements planned for the International Geophysical
 Year. Most of the reports are followed by references. Soviet
 scientists in the field of cosmic radiation who attended the
 conference are: N.I. Andronikashvili, K.A. Dobrotin, Yu.I.
 Gerasimov, N.M. Khokhlov and S.M. Verner. The articles are
 written in English, German and Russian without parallel transla-
 tion given.

International Conference (Cont.)

2. Friedlander, E.M. A HIGH ENERGY NEUTRON SOURCE WITH AN

ANOMALOUS ANGULAR SPREAD

21(1) SURVEY OF COSMIC RADIATION

- | | |
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| 1. Filipowicz, J., J. Gierulak, and J. Zieliński. Survey of the Experimental Hyperbaric Experiment Date | 215 |
| 2. Makoc, G., J.C. Chad, M. Lo, and K.C. Wang. Some Heavy Unstable Particle Events Observed With a Multistage Cloud Chamber | 217 |
| 3. Friedlander, E.M., and R.E. Mayer. Some Remarks on the Possible Dose-rate Dosey of the C-Shower | 217 |
| 4. Petrikov, V. New Measurements of the Life Time of Δ -Mesons From Annular Absorption Using a Graphite Absorber and Nuclear Emulsions | 218 |
| 5. Ries, D. Measurements of the Life Time of Δ -Mesons | 218 |
| 6. Mayer, R.E., and C. Erland. On Formation of Particles by Charged Particles of Spin $1/2$ and 0 in an External Field | 219 |

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"APPROVED FOR RELEASE: 09/19/2001

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APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002065110015-0"

Zielinski, P.

402: PM

✓ 6910
NOTE ON THE ANGULAR CORRELATION IN THE DECAY
OF HYPERFRAGMENTS. P. Zielinski (Polish Academy of
Sciences, Warsaw, Nuovo Cimento 10, 3, 1479-86 (1968))
See June.

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"APPROVED FOR RELEASE: 09/19/2001

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APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002065110015-0"

ZIELINSKI, P.

An experiment by Gell, Mann, and Pais on the systematization of elementary particles. Tr. from the Russian. p. 167.
(Pokroky Matematiky, Fysiky A Astronomie, Vol. 2, no. 2, 1957. Praha,
Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 10, October 1957. Uncl.

ZIELINSKI, P.

An attempt at the systematization of elementary particles of Gell-Mann and Pais. p. 239.

SO: Monthly List of East European Accessions (FEAL) LC, Vol. 6, no. 7, July 1957. Uncl.

ZIELINSKI, P.

H. Wilhelmsson and P. Zielinski: "Derivation of the $\Lambda^0 - \Lambda$ Potential From the $^3\text{He}_\Lambda$ and $^9\text{Be}_\Lambda$ Hyperfragment Binding Energies," Nuclear Physics, Vol. 6, No. 2, Amsterdam, 1958. Received 27 Nov 57. (Published from the Nordisk Institut for Teoretisk Atomfysik [Wilhelmsson - on leave from the Inst. of Theoretical Physics, Lund], and from the Institute for Nuclear Research of the Polish Academy of Sciences, Warsaw [Zielinski]).

POLAND/Nuclear Physics - Elementary Particles

C-3

Abs Jour : Ref Zhur - Fizika, No 8, 1958, No 17464

Author : Zielinski P.

Inst : Not Given

Title : Confirmation of the Existence of a π^0 Particle

Orig Pub : Postepy fiz., 1957, 8, No 4, 499-500

Abstract : No abstract

Card : 1/1

21 (7,8)

POL/47-10-3-5/9

AUTHOR: Zielinski, Przemyslaw

TITLE: Hyperfragments - a Review of Some Theoretical Problems

PERIODICAL: Postępy Fizyki, 1959, Vol 10, Nr 3, pp 341.- 361. (POL)

ABSTRACT: The article is a review of works published on hyperfragments since their discovery by M. Danysz and J. Pniewski in 1952. In connection with the appended 134 titles the author reviews a number of problems which have not yet found a satisfactory solution. Such problems are: the unknown binding energies of heavier hyperfragments, the insufficiently observed relative frequency of decay, the not exactly known frequency of the production of hyperfragments, the meager experimental data (the Chicago group) of the angular distribution. Experiments show that interactions with K-mesons do not maintain symmetry in the charge. Experiments are carried on in Berkeley in a bubble chamber. The spin in hyperon decay has been computed and amounts to 1/2. The computations, however, are not supported by a statistically acceptable number of cases. The spin of hyperfragments is not identical with that of hyperons; the production of a hyperfragment may be accompanied by a number of impacts which make its angular momentum unpredictable. A number of works on this

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Hyperfragments - a Review of Some Theoretical Problems

POL/47-10-3-5/9

subject has been published by Dalitz, and experiments are being carried on in Berkeley. The process of hyperfragment production has not been satisfactorily explained. The structure of hyperfragments has been the subject of many works. However, no observation has been made on the possibility of the existence of a "hyper-dinucleon" (i.e. a hyperon bound with a nucleon). The binding energy in a very heavy nucleon has been only tentatively put at 25 - 35 MeV, but no means of exact measurement have been found. The binding of the lambda-hyperon has been observed in almost all cases of hyperfragment production but not, though, the binding of other hyperons. There is also not yet confirmed a possibility of the existence of "double hyperfragments", i.e. nuclei, containing two odd particles.

There are: 5 sets of graphs, 1 table and 134 references, 14 of which are Soviet, 17 Polish, 8 German, 33 Italian, 49 American and 13 unidentified.

ASSOCIATION: Instytut Badań Jądrowych, Warszawa (Nuclear Research Institute, Warsaw).

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P/046/60/005/011/012/018
D249/D303

AUTHORS: Gierula, J., Mieśowicz, M., and Zieliński, P.

TITLE: Double maximum angular distributions in high energy
nuclear collisions

PERIODICAL: Nukleonika, v. 5, no. 11, 1960, 786

TEXT: Abstract - Report No. 146/VI (IBJ - Institute of Nuclear Research, PAS). A detailed statistical analysis of the shape of the angular distribution of secondary particles generated in 65 nuclear collisions for primary energies higher than 10^{12} eV has been presented. The double maximum shape of the distribution (in the coordinate $\log \tan \theta$) is a general feature of the events with a high degree of anisotropy of secondaries in the CM system. It has been found that the shape of the angular distribution is in agreement with the predictions of the two-center model of multiple meson production both for nucleon-nucleon and nucleon-heavy nucleus collision. A new parameter D, which is a measure of the deviation from the normal shape of the distribution towards the two-center

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Double maximum angular distributions .. P/046/60/005/011/012/018
D249/D303

distribution and also a coordinate convenient for visualizing this deviation, have been introduced. [Abstractor's note: Full version]. ✓

ASSOCIATION: Cosmic Ray Department, Institute of Nuclear Research,
Cracow: General Physics Department, School of Mining
and Metallurgy, Cracow (J. Gierula, and M. Mieścioricz)
Cosmic Ray Department, Institute of Nuclear Research,
Warsaw: Physics Department, University of Warsaw,
Warsaw (P. Zieliński)

Card 2/2

AUTHORS: Gierula, J., Miesowicz, M.,
Zielinski, P.

P/045/60/019/01/008/008
B018/B000

TITLE: Statistical Significance of Double Maximum Angular Distribution
in High-energy Jets

PERIODICAL: Acta Physica Polonica, 1960, Vol 19, Nr 1, pp 119-121 (Poland)

ABSTRACT: This is a letter to the editor. It was found that the angular distribution of secondary particles emitted in collisions of high-energy nucleons with nucleons or nuclei have the characteristic shape of two symmetric maxima in the coordinates dN/dr versus $\log \tan \Theta_i$ (Θ_i denoting the angles between the direction of the secondary particles and the primary direction of the bombarding nucleon). On the other hand the hydrodynamic theories predict Gaussian distributions. For an explanation the authors introduced the so-called two-center model. The analysis was made on 56 jets. The two-center model allows to explain the distribution to be a superposition of two separate Gaussian curves. It turned out that the two maxima could be observed only for dispersions greater than 0.6. The authors therefore divided the jets in two classes: 21 events with dispersion smaller than 0.6 and 35 events with the same quantity greater than 0.6 (Fig 1). From table 1 it follows that the existence of the double-maximum angular distribution may be regarded as statistically well

Card 1/2

DWORAK, Andrzej, mgr inz.; MOROZ, Zbigniew, inz.; ZIELINSKI,
Ryszard, mgr inz.

The FYA-31^a milling machine with continuous numerical
control device. Tec̄n lotn. 19 no. 7:189-191 Jl '64.

1. Institute of Electrical Engineering, Warsaw.

ZIELINSKI, R.; MYSZOWSKI, A.; WINIARSKI, B.

Numeral control of machine tools. p.490.

MECHANIK. (Stowarzyszenie Inżynierów i Techników Mechaników Polskich)
Warszawa, Poland. Vol.32, No.9, Sept. 1959.

Monthly list of East European Accession (EEAI) LC, Vol.9, no.1, Jan.1960

Uncl.

ZIELINSKI, R. (Warszawa)

A method of calculating the waiting time of trains before entering
a junction. Zastos mat 5 no.4:375-378 '61.

BUC, Jerzy, mgr. inz.; ZIELINSKI, Ryszard, mgr. inz.

Program-controlled machine tools in the aircraft industry.
Techn. lotn. 17 no. 5:146-149 My '62.

1. Politechnika, Warszawa.

BUC, Jerzy, mgr. inz.; ZIELINSKI, Ryszard, mgr. inz.

Problems connected with the introducing into production of numerically controlled machine tools. Techn lotn 16 no.10: 245-247 0 '61.

1. Politechnika, Warszawa.

BUC, Jerzy, mgr. inz.; ZIELINSKI, Ryszard, mgr. inz.

The preparation of the program for numerically controlled
machine tools. Techn lotn 17 no.6:171-175 Je '62.

ZIELINSKI, R.

TECHNOLOGY

Periodicals: NORMALIZACJA. Vol. 26, no. 1, Jan 1958

ZIELINSKI, R. A monogram for characterizing a lot after sorting. p. 11.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 2,
February 1959, Unclass.

ZIELINSKI, R.

The application of the standardization of the use of materials to the individual footwear workstand.

P. 199 ((Przeglad Skorany. Vol. 11, no. 8, Aug. 1956, Lodz, Poland)

Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 2,
February 1958

ZIELINSKI, R.

ZIELINSKI, R. Application of the achievements of atomic physics to the testing
of building materials. P. 335.

Vol. 10, No. 12, Dec. 1955

MATERIAŁY BUDOWLANE

TECHNOLOGIA

Warszawa, Poland

So: East European Accession, Vol. 5, No. 5, May 1956

ZIELINSKI, R.

ZIELINSKI, R. Tasks of the building industry according to Resolution No. 371 passed by the Presidium of the Government on October 29, 1955. p. 137

Vol. 28, no. 3, Mar. 1956

PRZEGLAD BUDOWLANY

TECHNOLOGY

Warszawa, Poland

So: East European Accession, Vol. 6, no. 2, Feb. 1957

"APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002065110015-0

"Klenjenie i suszenie drewna prądami wielkiej częstotliwości" (Glueing and drying of wood by high-frequency currents), by R. Zieliński. Reported in New Books (Nowe Książki), No. 12, June 15, 1956.

APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002065110015-0"

ZIELINSKI, R.

"Problems of defining technical properties of concrete in constructions without destroying the material." p.380 (INZINERIA I BUDOWNICTWO
Vc Vol. 11, No. 12, Dec. 1954. Warszawa, Poland)

SO: Monthly List of East European Accessions. (EEAL). LC. Vol. 4, No. 4.
April 1955. Uncl.

ZIELINSKI, R.

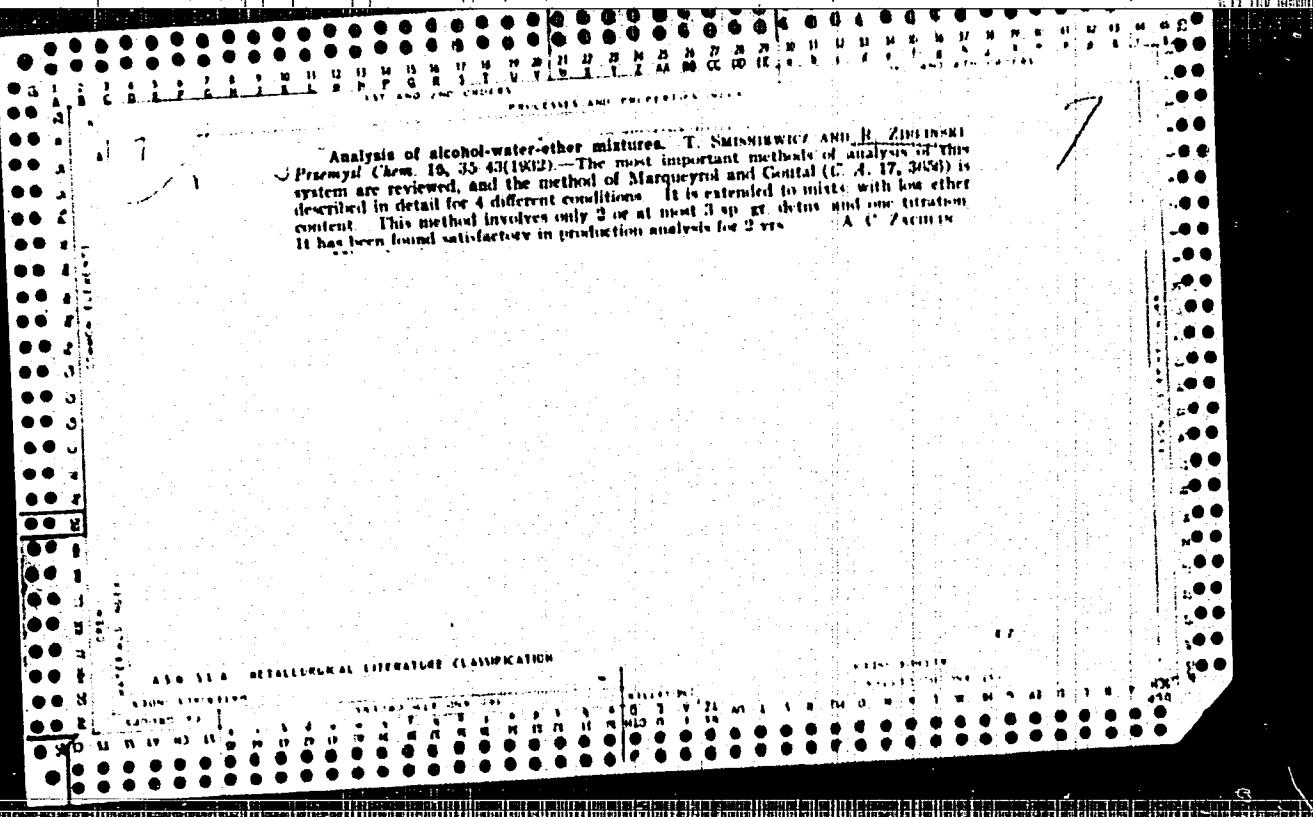
"Role and importance of the Problem Session of the Polish Academy of Sciences on the subject of materials in building technique." p. 379.
(INZINERIA I BUDOWNICTWO Vol. 11, No. 12, Dec. 1954, Warszawa, Poland)

SO: Monthly List of East European Accessions. (EEL). EC. Vol. 4, No. 4.
April 1955. Uncl.

ZIELINSKI, R.

"Boards Made from Shavings by the use of a Synthetic Binding Material." p.126
(Materiały Budowlane, Vol. 9, No. 5, May, 1954, Warszawa)

SO: Monthly List of East European Accessions, Vol. 3, No. 6, Library of Congress, June,
1954, Uncl.



P.T.A.

Transport

812

634.31.039.6 : 636.2

Zielinski S. The Use of Temporary Bridge Elements.
"Użycie prowizorycznych konstrukcji mostowych". Przegląd Mole-
towy. No. 2, 1951, pp. 61-66, 7 figs.

A number of railway lines will shortly be celebrating the cente-
nary of their existence. The necessity for carrying out capital repairs
or for reinforcing bridges and culverts. The use of temporary ele-
ments for small-span bridges (up to 10 metres clearance). Composi-
tion and design of temporary bridge elements. Organisation of tem-
porary work. Removal of permanent elements and replacing them by tem-
porary elements; shifting of temporary elements; final operations.
Opportunities for mechanising the work.

1484

625.122 : 025.1.041.1

Zielinski S. Rail Bundles as a Load Relieving Structure.
"Wiązki szyn jako konstrukcja odciążająca". Przegląd Kolejowy
No. 10, 1951, pp. 366-370, 11 figs.

The considerable amount of constructional work on railroads frequently involves work underneath the rails or in the immediate vicinity of rails. It is customary in such cases to make use of temporary bridge constructions. The author deals with a method of relieving the load by means of bundles of rails acting as a supporting beam. Arrangement of rail bundles, transversal location, suspension methods. Carrying out the suspension. Instances in which this method is applicable.

BUC, Jerzy, mgr inz.; ZIELINSKI, Ryszard, mgr inz.

Development of program control. Techn lotn 18 no.6:143-148
Je '63.

BUC, Jerzy; KURCYK, Tadeusz; ZDUN, Slawomir; ZIELINSKI, Ryszard

Use of program controlled machine tools in small and medium
lot production. Problemy proj hut maszyn 12 no.11:321-339
N '64.

1. Technical University, Warsaw.

KOMOSKA, Halina; ZAWARTKA, Maria; ZAWARTKA, Jan; ZIELANSKI, St.

Diaphragmatic relaxation in children. Pol. tyg. lek. 19 no.10:
355-357 2 Mr '64.

1. Z I Kliniki Pediatrycznej Akademii Medycznej we Wrocławiu (kierownik: prof. dr. med. Hanna Hirschfeldowa) i z Kliniki Chirurgii Dziecięcej Akademii Medycznej we Wrocławiu (kierownik: vacat).

ZAWARTKA, Jan; KOMORSKA, Halina; ZIELINSKI, Stanislaw

Portal hypertension in children. Pol. tyg. lek. 19 no.22:
832-833 25 My'64

1. Z Kliniki Chirurgii Dziecięcej Akademii Medycznej we
Wrocławiu.

ZIELINSKI, Stanislaw, inz.

"Mechanization of works for the medium type complete repair. Przegl kolej
drog Dodatek 14 no.5:101-109 My '62

1. Dyrekcja Okregowa Kolei Państwowych, Leszno.

ZIELINSKI, St.; WOZNIACKI, Wl.

Insufflating blast furnaces with substitute fuels. Biul.
inf inst metal zel no.1:1-5 '63.

1. Institute of Iron Metallurgy, Gliwice.

ZIELINSKI, Stefan Jan, mgr., inz.

A machine for packing zinc sheets in plywood barrels. Rudy i matala 6
no.11:495-496 '61.

(Zinc) (Packing(Mechanical engineering))

ZIELINSKI, Stefan Jan, mgr inz.

Volume and pressure control of Zn and Cd vapors in the cadmium column of a zinc rectifying furnace. Wied hut 19 no.10:
285-288 O '63

"APPROVED FOR RELEASE: 09/19/2001

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ZIELINSKI, Stefan, mgr. inz.; JARZABEK, Stanislaw, ing.

Design and utilization of the experimental arc clodding department in the Bierut Metallurgical Works. Wiad hut 17 no.11:
324-329 N '61

APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002065110015-0"

ZIELINSKI, Stefan, mgr inz.; STEC, Roman, mgr inz.

Sintering of mixtures with a high percentage of dusty materials. Wiad hut 18 no.12:365-370 D '62.

"APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002065110015-0

ZIELINSKI, Stefan, mgr inż.

Prospects in lumping ores. Wiad hut 16 no.10t308-310 0 '60.

APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002065110015-0"

MASLANKA, Aleksander, mgr.inz.; ZIELINSKI, Stefan, mgr.inz.; KOWALEWSKI, Maciej, mgr.inz.

Determination of reductivity, temperatute and softening range of different iron-nickel ores in the pelletizing prodecss. Hutnik P 28 no.7/8:280-284 Jl-Ag '61.

1. Instytut Metalurgii Zelaza, Gliwice.

ZIELINSKI, Stefan, mgr inz.

Influence of the reducer on the zinc distillation process in
horizontal muffles. Wiad hut 15 no.10:308-311 O '59.

ZIELINSKI, Stefan Jan, mgr inz.

Machine for loading metal plates into furnaces for melting purposes.
Wiad hut 15 [i.e. 20] no.1:11-12 Ja '64.

"APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002065110015-0

ZIELINSKI, Stefan J., mgr inz.; WALCZAK, Iręna, mgr; CHMIELOWSKI,
Jan, mgr

Tin recovery from tinplate scraps. Wiad hut 15 no. 3:
79-83 Mr '64.

APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002065110015-0"

"APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002065110015-0

KRUKIEWICZ, Ryszard, inz.; ZIELINSKI, Stefan, mgr inz.

Influence of the roasting of Leczyca ore on its crushability.
Wiad hut 19 no. 6: 145-148 Je '63.

APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R002065110015-0"

P/039/60/000/012/001/002
A221/A026

AUTHOR: Zieliński, Stefan, Master of Engineering

TITLE: The Process of Direct Iron Ore Reduction in Rotary Kilns.

PERIODICAL: Hutnik, 1960, No. 12, pp. 466 - 472

TEXT: The author describes briefly five methods of direct iron ore reduction in rotary kilns; three of them are fairly new, so far on semi-technical stage of development, while the remaining two are already in operation on industrial scale in several western countries. All five methods have been developed in western countries. The R-N process, after further development, might seriously endanger some existing industrial processes, like the production of pig iron in electric furnaces, lump concentrate or Wiberg process. The obvious reason for publishing this information is to familiarize wide circles of Polish metallurgical engineers with methods, which might be of importance for the Polish metallurgical industry, as they can be applied for processing low-grade iron ores and use inferior quality of fuel. The R-N method was developed by the Republic Steel Corp. and the National Lead Corp. and a semi-technical installation was built in Birmingham Ala, USA. This method can be applied for processing both poor and rich iron ores using inferior quality fuel, i.e. coke breeze, charcoal, peat or anthracite powder. The

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A221/A026

The Process of Direct Iron Ore Reduction in Rotary Kilns

important point is that ore reduction is carried out in temperatures lower than the melting temperature of any of the charge constituents. Tanner process of initial, partial reduction of iron ore was developed by Avesta Metallurgical Plant in Sweden. The rotary oven of the semi-technical installation is 450 mm in diameter and 2,000 mm long. Magnetite concentrate containing 71.3% Fe was processed and 52 - 76.4% of oxygen removed from the ore. Carbon content in the product was 8.2 - 12.7% C. The output of this installation was 100 kg in 45 hours. The product has to be further processed by the Höganäs process or in electric furnaces for final reduction to metallic iron. Scortecci process is based on reducing iron ore in a revolving drum by means of hot decomposed natural gas of the following composition: 84% H₂O, 6% CH₄, 4% CO and 5% N₂. 90 - 97% of oxygen is thus removed from the ore and the product, the spongy iron contains around 81% Fe. An experimental plant producing spongy iron by the Scortecci method was erected in Dolmine near Milan in Italy. The output of this plant is 2 tons of iron sponge in 24 h, and gas consumption 3,500 m³ per ton of sponge. Beset process is applied on industrial scale in several western countries. By this method various iron ore substitutes, mostly pyrite cinders with addition of manganese ore, lime stone, coke breeze and iron separated from the slag are processed. The kiln is heated with

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The Process of Direct Iron Ore Reduction in Rotary Kilns

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A221/A026

crude oil or powdered coal to a temperature max. 1,290°C. The products are pig iron and slag. For 1 ton of pig iron 1,550 kg of pyrite cinders (containing 67% Fe, 2% SiO₂, 2% S), 610 kg of coke breeze (containing 86% C, 1% S, and 10% ash), 335 kg of lime stone (containing 54% CaO and 2% SiO₂) and 350 kg of crude oil (of calorific value 9,600 kcal/kg) are used. The slag, after separation of intruded iron, which is returned to the process, is used for portland cement fabrication. Such an installation exists since 1939 in Aalborg, Denmark. Styrzelberg process for pig iron production was developed in Germany and the first installation of this type was put into operation in 1934. The process is not a continuous one; it is carried out in batches. In this process, too, iron ore substitutes or ores containing elements harmful in blast furnace process, like Zn, Sn, Pb, etc. are used. The reduction of ore takes place in a rotary kiln 10.5 m long and 3.8 m in diameter. Gas or powdered coal are being used as fuel, and reaction temperature is maintained at 1,400°C. The process is divided into three phases: a) warming up of the charge, b) removal of zinc and partial reduction of iron ore, c) final reduction of iron. The slag containing 27% SiO₂, 5% Al₂O₃, 57% CaO, 3 - 5% MgO, and 3 - 5% Fe is used for portland cement fabrication. There are 1 photo, 2 tables, 7 figures and 6 references: 2 English, 2 German, 1 Polish and 1 Danish.

ASSOCIATION: IMZ, Gliwice
Card 3/3

KOWALEWSKI, M., mgr inz.; ZIELIESKI, S., mgr inz.;

Sintering weathered mixtures. Hutnik P 30 no.7/8 220-223
Jl/Ag'63.

1. Instytut Metalurgii Zelaza, Gliwice.

WASYLEWICZ, Bronislaw; ZIELINSKI, Stefan

Ore lumping plants in Scandinavia. Problemy proj hut maszyn
ll no.7:221-231 Jl '63.

1. Biprohut, Gliwice (for Wasylewicz). 2. Instytut Metalurgii
zelaza, Gliwice (for Zielinski).

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ZIELINSKI, S.

Distr: 4E2a(j)(1)/4E3d

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002065110015-0"

ZIELINSKI, Stanislaw, inz.

Concrete pavements on railroad crossings. Przegl kolej drog
14 no.4:65-67 Ap '62.

1. Dyrekcja Okregowa Kolei Państwowych, Leszno.

ZIELINSKI, S.; WOZNIAKCI, W.

The problem of carbon blocks for lining blast furnaces. p. 178

HUTNIK (Panstwowe Wydawnictwa Techniczne) Katowice, Poland. Vol. 26, no. 5, May 1959

Monthly List of East European Accessions (EEAI) LC, Vol. 8, no. 9, Sept 1959
Uncl.

ZIELINSKI, S.

SCIENCE

Periodicals: ROCZNIKI CHEMII. Vol. 31, no. 2, 1957.

ZIELINSKI, S. The abnormal activity of aluminum hydroxide used as catalyst in the indigo carmine/H₂O₂ system. p. 421.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 4,
April 1959, Unclass.

ZIELINSKI, S.

SCIENCE

Periodicals: ROCZNIKI CHEMII. Vol. 31, no. 2, 1957.

ZIELINSKI, S. The specific catalytic activity of silver orthophosphate in reduction-oxidation systems. p. 429.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 4,
April 1959, Unclass.

ZIELINSKI, S.

SCIENCE

PERIODICALS: ROCZNIKI CHEMII, Vol. 31, No. 2, 1957

ZIELINSKI, S. The oxidation of As_2O_3 with atmospheric oxygen at various temperatures in the presence of one- and multicomponent catalyzers. p. 481.

Monthly list of East European Accessions (EEAI) LC, Vol. 8, No. 4,
April 1959, Unclass.

MALKIEWICZ, Tadeusz, Mgr Prof., Inz.; SIEWIERSKI, Jerzy, Mgr.Inz.; ZIELINSKI,
Stefan, Mgr.Inz.; NOWAKOWSKI, Stanislaw, Inz.

Application of radioisotopes to the measurement of the wear of the
carbon base block in the no.3 blast furnace at Lenin Ironworks.
Huta Lenina prace no.9:24-33 My '61.

ZIELINSKI, S.

TECHNOLOGY

PERIODICAL: HUTNIK, Vol. 25, no. 7/8, July/Aug. 1958.

ZIELINSKI, S.; Maslanka, A. The analysis of the methods applied in Polish metallurgical plants in the drying and blowing of blast furnaces. p. 250.

Monthly List of East European Accessions (EEAI) LC Vol. 8, No. 4 April, 1959, Unclass.

ZIELINSKI, Stanislaw

Somatotropin & its use in surgery. Polski tygod. lek. 14 no.20:
932-935 18 May 59.

1. (z II Kliniki Chirurgicznej P. A. M. w Szczecinie; kierownik:
doo. dr Wladyslaw Jatal Heftman).

(SOMATOTROPIN, ther. use

in surg (Pol))

(SURGERY, OPERATIVE

use of somatotropin (Pol))

ZIELINSKI, S.

Laying of surfaces on prestressed ferroconcrete foundations. p. 247.
(PRZEGLAD KOLEJOWY DROGOWY. Vol. 8, no. 11, Nov. 1956, Warszawa, Poland)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 12, Dec. 1957.
Uncl.

ZIELINSKI, S.

New methods of blast-furnace blowing-in and drying practices. p. 23.

(HUTNIK, Vol. 24, No. 1, Jan. 1957, Katowice, Poland.)

SO: Monthly List of East European Accessions (EEAL) Lc. vol. 6, No. 10, October, 1957. Uncl.

ZIELINSKI, S.

POLAND / Physical Chemistry, Kinetics, Combustion,
Explosions, Topochemistry, Catalysis.

B

Abs Jour: Ref Zhur-Khimiya, No 18, 1958, 60250.

Author : Alfons Krause, Stanislaw Zielinski.

Inst : -
Title : Anomalous Behaviour of Aluminum Hydroxides as
Catalyst at Reaction of Indigocarmine with H₂O₂.

Orig Pub: Roczn. chem., 1957, 31, No 2, 421-428.

Abstract: The catalytic activity of Al(OH)₃ (I) was studied
at the oxidation of indigocarmine (II) with H₂O₂
at 37°. It was found that II is strongly adsorbed
on I decreasing its catalytic activity. The ad-

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POLAND / Physical Chemistry, Kinetics, Combustion,
Explosions, Topochemistry, Catalysis.

B

Abs Jour: Ref Zhur-Khimiya, No 18, 1958, 60250.

Abstract: sorbed part of II oxidizes more slowly than II
in the solution. A method to evaluate the cata-
lytic activity of any aluminum hydroxide by the
reaction of II cxiadation with H₂O₂ is proposed.

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ZIELINSKI, S.

POLAND / Physical Chemistry. Kinetics, Combustion,
Explosions, Topochemistry, Catalysis.

B

Abs Jour: Ref Zhur-Khimiya, No 18, 1958, 60251.

Author : Alfons Krause, Stanislaw Zielinski, Maria Blawatska.

Inst : -

Title : Oxidation of As_2O_3 by Oxygen from Air at Various
Temperatures in Presence of Mono- and Multicom-
ponent Catalysts.

Orig Pub: Roczn. Chem., 1957, 31, No 2, 481-488.

Abstract: It was found that the rate of As_2O_3 (I) oxidation
by oxygen from the air in the presence of $Cu(OH)_2$
(II) at 30-50° rises with the temperature rise.

Card 1/2

ZIELINSKI, STANISLAW

POLAND / Physical Chemistry, Kinetics, Combustion, Explosions, B-9
Topochemistry, Catalysis.

Abs Jour : Rof Zhur - Khim., No 10, 1958, 31798

Author : Alfons Krause, Stanislaw Zielinski, Henryk Wozniczok.

Inst : -

Title : Determination of Active Places on Surface of Al(OH)_3
Carrier.

Orig Pub : Roczn. chcm., 1956, 30, No 4, 1103-1110.

Abstract : It was found that the catalyst $\text{Al(OH)}_3\text{-Co}^{2+}$ is very active at the indigocarmine oxidation with hydrogen peroxide at 37°. The activity of the Co ions rises with the increase of the amount of the carrier Al(OH)_3 . The maximum activity and the magnitude of the surface are determined, and the number of active places on the surface is computed.

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18(5,7), 25(5)

POL/39-59-5-2/14

AUTHOR: Zielinski, Stefan, Master of Engineering Sciences and
Wozniacki, Wladyslaw, Engineer

TITLE: The Problem of Carbon Blocks for Lining Blast Furnaces

PERIODICAL: Hutnik, 1959, Nr 5, pp 178-186 (Poland)

ABSTRACT: The national economic plan provides for an increase in the output of blast furnaces to 7,4 million tons yearly by 1965, giving an increase of 94% compared to 1958. It is essential, therefore, to exploit to a maximum all production resources. One of these important tasks is to lengthen the life-span of blast furnaces by providing high-quality heat-resistant materials, by improving their preparation for lining the furnace itself and above all, by perfecting the techniques of carbon-lining of the lower parts of blast furnaces. The factors which make for rapid deterioration of the carbon lining are as follows: too wide-ranging differences in the physical and chemical

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POI/39-59-5-2/14

The Problem of Carbon Blocks for Lining Blast Furnaces

properties of carbon products successively used; faulty transportation, loading, unloading and storage of these products; the use in many cases of improper construction and block-laying methods; physical changes which take place in the blocks at high temperature, penetration of slag and pigiron into the lining; finally, inadequate cooling of the carbon lining. Of these factors, the most important is the influence of drying procedures and the first stages of operation of the furnace. These cause the physical changes which take place in the carbon lining and make the latter less resistant to the inroads of slag and pig-iron. It must be added here that the destructive effects of some of these factors could be obviated by better adapting some of our furnaces to construction methods using heat-resistant linings. In order to prolong the life-span of all parts of the blast fur-nace, the following steps must be taken: carbon blocks used for lining should show the least possible

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The Problem of Carbon Blocks for Lining Blast Furnaces

variance in physical and chemical properties; blocks should be transported in closed trucks, handled carefully and stored in dry, sheltered spaces; The system of block-laying where 50 mm spaces are left between the blocks should be discontinued in favor of using specially shaped blocks or else laying them in contact with one another; undertake research to develop a new putty less porous than the one used hitherto yet with higher resistance and better binding properties; with such a putty in use, carbon blocks of smaller dimensions can be produced, thus making it easier to endow them with the required high qualities; introduce a series of shelves welded to the structure to act as protection against interior landslides; undertake research to determine how proper cooling methods can be achieved, based on the heat conductivity of the carbon materials used, thus counter-acting slag and pig-iron inroads on the lining; consider possibilities of water and air cooling of the hearth, thus improving

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The Problem of Carbon Blocks for Lining
Blast Furnaces

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safety conditions; use gas-proof sheathing and introduce regular control of cooling facilities to prevent oxidation of the carbon materials by contact with air or steam. It is the author's opinion that the implementation of these recommendations will make it possible for the Polish industry to achieve a lifespan for its blast furnaces similar to those achieved in the USA, the Soviet Union, Britain and Germany. There are 8 microphotographs, 2 tables and 21 references, 15 of which are English, 2 Soviet, 2 German, 1 Polish and 1 Czech.

ASSOCIATION: Instytut metalurgii zelaza - Gliwice (Institute of Iron Metallurgy - Gliwice)

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Card 4/4

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